MEMORANDUM FOR: Geometrics GPS, Inc.

FROM: George E. Leigh
Contracting Officer's Technical Representative

SUBJECT: PROJECT INSTRUCTIONS:
Buncombe County Height Modernization Survey

This document contains specific instructions to accomplish the following height modernization survey:

1. Project Name: BUNCOMBE COUNTY HEIGHT MOD, 2004
2. Geographic Limits: Buncombe County, North Carolina
3. Project ID Number: GPS-1963

4a. Size of Project: 1700 square kilometers
4b. Number of Points: approximately 77 stations
4c. LIDAR Project Area: None.
4d. LIDAR Parameters: None.

5. Points of Contact (e-mail both):

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This Height Modernization project shall include mark setting, GPS observations, data processing, analysis, adjustment, and submittal in specified formats, and preparing reports. Reconnaissance and mark recovery have already been completed.

Detailed instructions are provided in *Scope of Work: Height Modernization and LIDAR Surveys* (SOW) v9, dated April 24, 2002. Deviations from this SOW include the following:

- Reconnaissance was completed in 2003 by personnel from NCGS-Asheville office, who recommend a network of approximately 67 existing + 10 proposed marks as shown in our reconnaissance package. Additional reconnaissance data (e.g., for marks not found or found but not selected) may be available in NCGS or NGS database records.
- Proposed mark setting on Blue Ridge Parkway right-of-way for stations BIG RIDGE, LANE PINNACLE, and DRIP may require special approval from the National Park Service.

- Noted from reconnaissance photographs, stations SATURN, E 127 and K 180 may require mark maintenance. The stability of these stations may be suspect.
- Reconnaissance has identified a paucity of vertical control in the northeast corner of the project. Consider adding bench marks MITCHELL 2 (FB2737), K 128 (FB0242), or X 130 (FB0245) with 120-minute local network observations to compensate for the long vector lengths.
- The 30-minute observations are extended to 45 minutes.
- Capture a pencil rubbing of stamping (disk or logo cap) each time a mark is occupied for observations. Use the form found at http://www.ngs.noaa.gov/PROJECTS/FBN
- All tripods shall be tested for stability, plumb alignment (straightness of center pole), and height verification at the beginning and end of the project. All tripods shall be examined for stability with each use. Ensure that hinges, clamps, and feet are secure and in good repair. Also, check the position of the bubble in the circular vial.
- Use CD-ROMs instead of Zip disks for submitting data.
- Use ITRF2000 coordinates for all vector processing. If ITRF2000 coordinates are not available for the reference stations, transform NAD83 coordinates with NGS program HTDP.
- Use the U.S. Survey foot (3.28083333333 feet = 1 meter) for any length conversions.
- The Contractor shall submit to NGS the initial minimally constrained adjustment before continuing with additional processing. NGS will review and comment on this adjustment as soon as possible, normally within 5 working days.
- The Contractor shall have a registered North Carolina surveyor oversee all work. See http://www.ncbels.org/

You have been supplied with the relevant materials listed in the SOW Section 3 and with reconnaissance deliverables, including those listed in HTMOD Section 10.3 B-H. These recovery notes, pencil rubbings, visibility diagrams, and photographs can be considered acceptable for submission with your survey plan. All should be checked and completed prior to the final project submittal.